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EXAMINER				
NICKERSON, JEFFREY L.				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

10/500,146

Applicant(s)

KATAYAMA, YASUSHI

Examiner

JEFFREY NICKERSON

Art Unit

4117

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-22 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 10 and 23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 December 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 09 July 2004
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This communication is in response to Application No. 10/500,146 filed nationally on 09 July 2004 and internationally on 18 November 2003. The amendment presented on 13 December 2007, which cancels claims 27-28, provides change to claims 1-26, the abstract, specification, title, and drawings, is hereby acknowledged. Claims 1-26 have been examined.

Information Disclosure Statement

2. The examiner would like to thank applicant for indicating the explanation of relevancy can be waived for non-English publications when cited in an English International Search Report. As such, the references previously cited on the IDS have been considered and a copy of the corrected IDS is contained within this Office action.

Drawings

3. The replacement drawings were received on 13 December 2007. These drawings are accepted by the examiner and all prior objections to the drawings are hereby withdrawn.

Specification

4. The amendment that provided change to the title and abstract is noted. All prior objections regarding the title and abstract are hereby withdrawn.

5. The amendment that provided change to the specification is noted. All prior objections regarding the specification are hereby withdrawn.

Claim Objections

6. The amendment that provided change to claims 1-26 is noted. All prior objections regarding the claims are hereby withdrawn.

7. Claims 10 and 23 are objected to because of the following informalities:
confusing phraseology. Appropriate correction is required.

Regarding claims 10 and 23, the applicant has numbered the multiple variables and their definitions in an effort to make the limitation more clear, however a variable not in the original equation is designated by the number (4). The examiner recommends rewording the last limitation to read in the following order:

a) what is being configured (β) and its definition

b) under what conditions it is being configured (when return blocks $q \times \alpha \times n \times \beta >$
number of blocks p)

c) definitions of terms in the equation relationship (wherein q is and α is and n is ... and p is ...).

Claim Rejections - 35 USC § 112

8. The amendment that provided change to claims 1-26 is noted. All prior rejections under 35 USC 112 are hereby withdrawn.

Response to Arguments

9. Applicant's arguments filed 13 December 2007 and regarding claims 1-10 and 14-23 have been fully considered but they are not persuasive.

10. Regarding claims 1 and 14, applicant amends a limitation (previously included in claims 8 and 21) into these claims and argues that the new limitation **"a rule judgment condition setting unit configured to set judgment data for judging whether the node executes a process satisfying a process request"** is not taught by the combined teachings of Fradette and Kaneko.

The examiner disagrees. The applicant's wording of this limitation does not specify when or how the setting of judgment data must occur. Fradette teaches a rule judgment condition setting unit (caching unit) configured to set judgment data (I/O status) for judging whether the node executes a process satisfying a process request (whether the read or write process has completed). (Fradette: col 8, lines 35-50

Art Unit: 4117

specifies the I/O status can be changed and transmitted back before the data is written at the node). Therefore, the rejection is maintained.

11. Regarding claims 2-10 and 15-23, these claims were conditionally argued on the basis of their parent claims 1 and 14 and therefore their rejections are maintained.

12. Applicant's arguments with respect to claim 11-13 and 24-26 have been considered but are moot in view of the new ground(s) of rejection. These new grounds of rejection are necessitated by amendment.

Claim Rejections - 35 USC § 103

13. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

14. Claims 1, 3, 8, 14, 16, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradette (US 6,606,698 B2), and further in view of Kaneko et al (US 2003/0,101,272 A1).

Regarding claim 1, Fradette teaches an information processing apparatus

configured to serve as a reproduction instruction apparatus to transmit a data reproduction process request (translated request) (Fradette: col 2, lines 6-11 specify

Art Unit: 4117

manipulating the request) to a node (jukeboxes) connected to a network (Fradette: Figure 13, item 20d specify it could connect to a network; col 1, lines 52-55 specify jukeboxes on a network)

and to execute a data reproduction process based on return data (Fradette: col 9, lines 52-59 specify updating the cache) comprising:

a packet generating unit (normalizer) configured to perform a setting process for reproduction request process object data (translated request) and an address setting process (storage address generator), and generating a data reproduction process request packet (normalized request) storing designation data for the set request process object data (translated request) as a request statement (Fradette: col 2, lines 11-14);

a network interface unit (access unit) configured to transmit the packet generated by the packet generating unit. (Fradette: col 2, lines 16-17 and col 5, lines 46-48 specify the access unit is a communication interface)

a rule judgment condition setting unit (caching unit) configured to set judgment data (I/O status) for judging whether the node executes a process satisfying a process request (whether the read or write process has completed). (Fradette: col 8, lines 35-50 specifies the I/O status can be changed and transmitted back before the data is written at the node)

Fradette does not teach a data transmission rate setting unit configured to select a transmission mode or determine the transmission rate.

Kaneko, in a similar field of endeavor, teaches a data transmission rate setting unit (Kaneko: Figure 1, item 11: data management unit) configured to select one or more data transmission modes (Kaneko: transfer method) to be adopted as a return data transmission mode from a plurality of data transmission modes and to determine a data transmission rate (Kaneko: band in use/transfer rate) of each selected data transmission mode (Kaneko: [0005] specify a "distribution information" that contains the selected transfer method from either unicast or multicast and the transfer rate; Kaneko: [0012-0013] specify the band in use can be adjusted based on the method, providing it can be determined).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Kaneko for managing data transfer by selecting a transmission mode and rate. The teachings of Kaneko, when implemented in the Fradette system, would allow for more efficient and faster data transfer capabilities. One of ordinary skill in the art would be motivated to utilize the teachings of Kaneko in the Fradette system in order to "efficiently adjust the distribution schedule of a plurality of pieces of data in a distribution system" (Kaneko: [0011]).

Regarding claim 3, the Fradette/Kaneko system teaches an information processing apparatus wherein:

the data transmission rate setting unit is configured to select the data transmission mode including a carousel transmission mode (Kaneko: multicast method), a chaining transmission mode, a distributed cache mode or a client server mode

(Kaneko: unicast method) and to determine the data transmission rate (Kaneko: band in use) of each selected mode. (Kaneko: [0005] and [0012-0013])

Regarding claim 8, the Fradette/Kaneko system teaches an information processing apparatus wherein:

wherein the packet generating unit (Fradette: normalizer) is configured to generate the data reproduction process request packet storing the judgment data set by the rule judgment condition setting unit and the designation data for the reproduction object data. (Fradette: requested data) (Fradette: col 9, line 60 – col 10, line 3 specify the requested data and I/O status are both sent back to the host)

Regarding claim 14, this method claim comprises limitations substantially similar to that of claim 1 and the same rationale of rejection is used, where applicable.

Regarding claim 16, this method claim comprises limitations substantially similar to that of claim 3 and the same rationale of rejection is used, where applicable.

Regarding claim 21, this method claim comprises limitations substantially similar to that of claim 8 and the same rationale of rejection is used, where applicable.

15. Claims 2, 4, 6, 15, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradette (US 6,606,698 B2) and Kaneko et al (US 2003/0,101,272 A1), and in further view of Day (US 7,222,185 B1).

Regarding claim 2, the Fradette/Kaneko system teaches an information processing apparatus wherein the data transmission rate setting unit selects a data transmission mode and determines the transmission rate of each selected data transmission mode. (Kaneko: [0005])

The Fradette/Kaneko system does not teach selecting a transmission mode based on a demand level of the reproduction object data.

Day, in a similar field of endeavor, teaches setting the data transmission mode in accordance with a demand level (Day: popularity) of reproduction object data (Day: content) (Day: abstract).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Day for selecting a transmission mode based on the demand of the content. The teachings of Day, when implemented in the Fradette/Kaneko system, would allow for a more efficient content distribution and retrieval system. One of ordinary skill in the art would be motivated to utilize the teachings of Day in the Fradette/Kaneko system in order to "maximize network resources, thereby causing the network to operate economically" (Day: abstract).

Art Unit: 4117

Regarding claim 4, Fradette, Kaneko, and Day together teach an information processing apparatus wherein:

the data transmission rate setting unit (Day: system controller) is configured to have correspondence data (Day: content distribution characteristic) between the demand level (Day: popularity) of the reproduction object data (Day: content) (Day: abstract;) and a band rate as the data transmission rate of a selected data transmission mode; (Day: col 7, lines 7-11 provide that the content distribution characteristic should be based on factors other than just popularity; Kaneko: [0005] specify a transfer rate corresponding with selected modes)

to select the data transmission mode based upon demand level information of the reproduction object data in accordance with the correspondence data (Day: col 2, lines 58-62)

and to execute a process of determining the data transmission rate (Kaneko: band in use) of each selected mode (Kaneko: [0012-0013] specify adjusting, which provides for determining)

Regarding claim 6, Fradette, Kaneko, and Day together teach an information processing apparatus wherein:

the data transmission rate setting unit (Day: system controller) is configured to execute a process of setting the carousel transmission mode (Day: multicast/one-to-many) as a selected data transmission mode, (Day: abstract) if the demand level (Day: content distribution characteristic) of the reproduction object data (Day: content) is

Art Unit: 4117

higher than a preset threshold value. (Day: col 3, lines 42-52 specify comparing the popularity level to a threshold; the abstract specifies a higher popularity results in a multicast mode implying it has to be above the threshold).

Regarding claim 15, this method claim comprises limitations substantially similar to that of claim 2 and the same rationale of rejection is used, where applicable.

Regarding claim 17, this method claim comprises limitations substantially similar to that of claim 4 and the same rationale of rejection is used, where applicable.

Regarding claim 19, this method claim comprises limitations substantially similar to that of claim 6 and the same rationale of rejection is used, where applicable.

16. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradette (US 6,606,698 B2), in view of Kaneko et al (US 2003/0,101,272 A1) and Day (US 7,222,185 B1), and further in view of Desphande (US 7,191,246 B2).

Regarding claim 5, the Fradette/Kaneko/Day system teaches an information processing apparatus wherein:

the data transmission rate setting unit (Day: system controller) is configured to execute a process of determining the data transmission rate of each data transmission mode (Kaneko: [0005] specify a transfer rate corresponding with selected modes;

Kaneko: [0012-0013] specify adjusting, which imply determining) in accordance with a demand level x (Day: popularity), a band rate y for each transmission mode (Kaneko: band in use);

The Fradette/Kaneko/Day system does not teach creating a function group in order to determine the transmission rate, where the summation of the group is set to equal another value.

Desphande, in a similar field of endeavor, teaches selecting a data transmission rate based on a cost function, which comprises sub-cost functions from each receiver that can be identified with a particular notation. (Desphande: col 5, lines 31 – 62 specify a cost function and in the summation equations listed he denotes an indicator j for the sub functions)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Desphande for determining the transmission rate based on a function group. The teachings of Desphande, when implemented in the Fradette/Kaneko/Day system, would allow for a more efficient and accurate data transmission rate determination process. One of ordinary skill in the art would be motivated to utilize the teachings of Desphande in the Fradette/Kaneko/Day system in order to “select transmission rates suitable for a plurality of clients” and to provide rate selection for various modes, such as “unicast and multicast delivery mechanisms” (Desphande: col 3, lines 13-18).

Regarding claim 18, this method claim comprises limitations substantially similar to that of claim 5 and the same rationale of rejection is used, where applicable.

17. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradette (US 6,606,698 B2), in view of Kaneko et al (US 2003/0,101,272 A1) and Day (US 7,222,185 B1), and in further view of Noma et al (US 2003/0,055,988 A1).

Regarding claim 7, Fradette, Kaneko and Day together teach an information processing apparatus further comprising:

a data recovery processing unit (Fradette: normalizer) that can compress, decompress, encrypt, and decrypt data and combining data requests. (Fradette: col 4, line 66 – col 5, line 15)

wherein the data recovery processing unit is configured to execute the processes for the reproduction object data extracted from packets received from the node that received the data reproduction process request (Fradette: col 5, lines 8-15 specify that the process is performed on read data)

The Fradette/Kaneko/Day system does not teach using an interleaving or de-interleaving process on the data or using the specific encoding/decoding technique of Forward Error Correction (FEC).

Noma, in a similar field of endeavor, teaches a data recovery processing unit (Noma: de-scrambler/de-FEC/de-interleave unit)

for executing a deinterleave process and an FEC decoding process; (Noma: [0044]) on received data (Noma: [0044] specifies a receiver side) in order to recover data (Noma: [0044] specifies checking data reliability).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Noma for interleaving/deinterleaving and FEC encoding/decoding on transmitted/received data. The teachings of Noma, when implemented in the Fradette/Kaneko/Day system, would allow for a more efficient data transfer system that could allow quicker data recovery. One of ordinary skill in the art would be motivated to utilize the teachings of Noma in the Fradette/Kaneko/Day system for quickly "correcting errors" and in order to "check the reliability of the data" (Noma: [0044]).

Regarding claim 20, this method claim comprises limitations substantially similar to that of claim 7 and the same rationale of rejection is used, where applicable.

18. Claims 9 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fradette (US 6,606,698 B2), in view of Kaneko et al (US 2003/0,101,272 A1) and Day (US 7,222,185 B1), and further in view of Fukunaga et al (US 6,282,240 B1).

Regarding claim 9, the Fradette/Kaneko/Day system teach an information processing apparatus wherein:

the packet generating unit is configured to generate a packet storing return data (Fradette: col 9, lines 52-62 specify constructing a packet with status information)

The Fradette/Kaneko/Day system does not teach creating a probability value capable of being adopted by a judgment process.

Fukunaga, in a similar field of endeavor, teaches a rule judgment condition setting unit (Fukunaga: reception capability estimate unit) configured to execute a process of setting a probability value (Fukunaga: col 5, lines 18-34 specify the probability estimating unit) as a reproduction rule judgment condition statement (Fukunaga: reception capability estimate) for judging whether the node executes the process satisfying the process request (Fukunaga: col 5, lines 35-48 specify the selection unit which determines if the target is capable of receiving the next frame)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Fukunaga for estimating a probability of a characteristic of the receiving node and utilizing that probability in a process. The teachings of Fukunaga, when implemented in the Fradette/Kaneko/Day system, would allow for a more selective target determination transmission mode. One of ordinary skill in the art would be motivated to utilize the teachings of Fukunaga in the Fradette/Kaneko/Day system in order to allow broadcasting and multicasting transmission schemes to selectively retransmit packets to targets and decrease the overall network load. (Fukunaga: col 2, lines 1-10).

Art Unit: 4117

Regarding claim 22, this method claim comprises limitations substantially similar to that of claim 9 and the same rationale of rejection is used, where applicable.

19. Claims 11-13 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Day (US 7,222,185 B1), and further in view of Cudre-Mauroux et al ("A Decentralized Architecture For Adaptive Media Dissemination", 28 August 2002).

Regarding claim 11, Day teaches an information processing apparatus that

Configured to serve as a demand information provider apparatus (Day: Figure 3, item 32 in combination with item 82) configured to provide demand level information of transmission data (results) over a network (Day: Figure 3, item 36; Day: col 8) characterized by comprising:

a communication unit (Day: system controller) configured to transmit and receive data to and from a network-connected node (Day: Figure 3, item 34: receiver) (Day: col 8, lines 4-11)

a control unit (Day: system controller in combination with counting facility) configured to count a number of demand level information acquisition requests received from the network-connected node via the communication unit (Day: col 8, 18-27 specify tracking requests and then counting them)

and to generate demand level information for each transmission data (Day: results) in accordance with the count (Day: col 8, lines 22 – 33 specify tracking and creating results from the number of requests)

to generate response information (Day: reports) corresponding to each demand level information acquisition request in accordance with the generated demand level information (Day: results) (Day: col 8, lines 22 – 36 specify reporting the results)

and to transmit the response information via the communication unit. (Day: col 8, lines 33 – 36 specify reporting the results back to the system controller).

Day does not teach wherein the network-connected node is configured to set judgment data for judging whether a request for transmission data is executed based on the demand level information.

Cudre-Mauroux, in a similar field of endeavor, teaches wherein the network-connected node (peer) is configured to set judgment data (key) for judging whether a request for transmission data is executed (routed or replicated) based on the demand level information (popularity) (Cudre-Mauroux: section 3, paragraph 2 specifies assigning “keys” to assets based on popularity).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Cudre-Mauroux for obtaining popularity information about stored data to make execution or routing decisions. The teachings of Cudre-Mauroux, when implemented in the Day system, would allow for nodes to determine how to route and execute requests based on data popularity. One of ordinary skill in the art would be motivated to utilize the teachings of Cudre-Mauroux in the Day system in order to increase the efficiency of handling of data requests using data popularity statistics.

Art Unit: 4117

Regarding claim 12, the Day/Cudre-Mauroux system teaches an information processing apparatus wherein:

the control unit (Day: system controller in combination with counting facility) is configured to execute transmission control of a carousel transmission (Day: multicast) process request for data corresponding to a demand level equal to or larger than a threshold value, relative to a carousel transmission execution node when the demand level for each data based upon the count becomes equal to or larger than a preset threshold value. (Day: col 8, lines 37-61 specify choosing unicast if below a threshold for unpopular content; Day: abstract specifies choosing multicast if the popularity is higher)

Regarding claim 13, Day/Cudre-Mauroux system teaches an information processing apparatus wherein:

the control unit (Day: system controller in combination with counting facility) is configured to execute a process of storing an identifier (Day: name) of carousel transmission execution object data (content) and carousel transmission destination address information in accordance with transmission source node address information (Day: source information) of the received demand level information acquisition request, in the carousel transmission process request. (Day: col 10, lines 53-62 specify content information stored in an allocation table; Day: col 9, lines 7-15 for allocation table description)

Art Unit: 4117

Regarding claim 24, this method claim comprises limitations substantially similar to that of claim 11 and the same rationale of rejection is used, where applicable.

Regarding claim 25, this method claim comprises limitations substantially similar to that of claim 12 and the same rationale of rejection is used, where applicable.

Regarding claim 26, this method claim comprises limitations substantially similar to that of claim 13 and the same rationale of rejection is used, where applicable.

Allowable Subject Matter

20. Claims 10 and 23 would be allowable if rewritten to overcome the objections set forth in this Office action, and to include all of the limitations of the base claim and any intervening claims.

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

Art Unit: 4117

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEFFREY NICKERSON whose telephone number is (571)270-3631. The examiner can normally be reached on M-Th, 8:30-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Beatriz Prieto can be reached on 571-272-3902. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.N./
Jeffrey Nickerson
Patent Examiner

/Prieto, Beatriz/
Supervisory Patent Examiner, Art Unit 4117